

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. - 35. (canceled).

36. - 49. (canceled).

50. (currently amended): A system for processing a workpiece (5) located in a ~~predefined~~ predefined process station (1) at a plurality of process sites (4) with programmed process parameters, comprising at least one process tool (7) for processing said workpiece (5) at said ~~programmed~~ process sites (4) and a recognizing means (200) for identifying whether said process tool (7) is located in said process station (1),

characterized in that

said recognizing means ~~200~~ (200) is designed

- to identify said location of said process tool (7) in said process station (1);
- to identify said location of said workpiece (5) in said process station (1); and
- to determine therefrom the location of said process tool (7) relative to each

process site (4); whereby

said process tool (7) is provided with at least one marking (202) and

said recognizing means (200) comprises an imaging means (201) for imaging said process station (1) and at least a section of said workpiece (5), an image processing means (203) identifying the location of said process tool (7) relative to said workpiece (5) by processing the

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 09/812,568

an image of said at least one marking (202) and of said at least one section of said workpiece (5), and a means (7) for setting said tool (7) to said process parameters on the basis of the position of said process tool (7) relative to ~~said~~ a selected process site (4).

51. (currently amended): The process system as set forth in claim 50, characterized in that said ~~imaging~~ image processing means (203) analyze movement maps of said process tool (7) in establishing whether a predefined number of process operations at each of said process sites (4) has been implemented.

52. (previously presented): The process system as set forth in claim 50, characterized in that an enabling means does not enable said identified process tool (7) at a programmed process site (4") until said recognizing means (200) has identified a predefined number of process operations at a previous process site (4).

53. (currently amended): The process system as set forth in claim 50, characterized in that said recognizing means (200) senses ~~the~~ a speed at which said workpiece (4) is moved on the basis of time-tracking ~~the~~ a change in position of one or more process sites (4).

54. (previously presented): The process system as set forth in claim 50, characterized in that said recognizing means (200) identifies an angular orientation of said process tool (7) relative to a programmed process site (4).

55. (currently amended): The process system as set forth in claim 52, characterized in that said process tool (7) comprises a set of process units (71-74) ~~including~~ having a predefined orientation, said enabling means enabling said process units at a subsequent process site only

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 09/812,568

when a counter means of said recognizing means (200) has established that said process units (71-74) have assumed a predefined number of orientation locations at a previous process site.

56. (currently amended): The process system as set forth in claim 50, characterized in that said workpiece (5) is a motor vehicle or part of a motor vehicle, said selected process site (4) is a predefined assembly site on said motor vehicle or on said part, said process station (1) is a predefined station of a motor vehicle assembly line, said process tool (7) comprises one or more screw drivers or nut runners, and said programmed process parameters are bolting parameters of said one or more screw drivers or nut runners.

57. (previously presented): The process system as set forth in claim 56, characterized in that said bolting parameters comprise a torque and/or a torsion angle of said one or more screw drivers or nut runners.

58. (currently amended): The process system as set forth in claim 50, characterized in that said recognizing means (200) comprises a workpiece memory (204) for memorizing workpiece dimensions, said image processing means (204) determines the location of a reference coordinate point of said workpiece image (51) and determines the location of said tool marking (2902) in a system of coordinates (x, y) fixed relative to said process station (1) and determines the location of the tool (7) relative to the workpiece (5) by analyzing the spacings between said coordinates of said marking and each process site (4) with reference to said workpiece dimensions held in said workpiece memory (204).

59. (currently amended): The process system as set forth in claim ~~54~~58, characterized in that said recognizing means (200) identifies an angular orientation of said process tool (7)

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLN. NO. 09/812,568

relative to a programmed process site (4), said tool is provided with two markings (202, 202') and said image processing means (203) determines said angular orientation of said tool relative to said process site (4) on the basis of analyzing said coordinates of both markings relative to said coordinates of said process sites (4).